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| HOQUE, FARHANA AKHTER | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@crbcp.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/599,649 | COSTER ET AL. | |
| | Examiner | Art Unit | |
| | FARHANA HOQUE | 2858 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *49-80 and 90-98* is/are pending in the application.

4a) Of the above claim(s) *81-89* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49-80 and 90-98* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 October 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/4/2006 and 3/7/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

***Election/Restrictions***

1. This application contains claims directed to more than one inventions of the generic invention. These inventions are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The inventions are as follows:

Invention 1: Claims 49-80 and 90-98 are directed towards various electrode arrangements for field cages (Figs. 1-2 and 4-6).

Invention 2: Claims 81-89 are directed towards a structure of a fluid system (Fig. 9).

Applicant is required, in reply to this action, to elect a single invention to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected invention, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim (claim 49 in the instant application), applicant will be entitled to consideration of claims to additional inventions which are written in dependent form or otherwise require all the limitations of an allowed generic claim.

REQUIREMENT FOR UNITY OF INVENTION

As provided in 37 CFR 1.475(a), a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in a national stage application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. The groups of claims do not have any common or corresponding special technical features.

The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim. See 37 CFR 1.475(e).

WHEN CLAIMS ARE DIRECTED TO MULTIPLE CATEGORIES OF INVENTIONS

As provided in 37 CFR 1.475(b), a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories:

(1) A product and a process specially adapted for the manufacture of said product; or

(2) A product and process of use of said product; or

(3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or

(4) A process and an apparatus or means specifically designed for carrying out the said process; or

(5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

Otherwise, unity of invention might not be present. See 37 CFR 1.475(c).

2. During a telephone conversation with David Tener on 1/5/2011 a provisional election was made without traverse to prosecute the invention of group 1, claims 49-80 and 90-98. Affirmation of this election must be made by applicant in replying to this Office action. Claims 81-89 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of an invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

Should applicant traverse on the ground that the inventions have unity of invention (37 CFR 1.475(a)), applicant must provide reasons in support thereof. Applicant may submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. Where such evidence or admission is provided by applicant, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

4. The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double

patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

## DETAILED ACTION

### *Claim Objections*

5. Claim 56 is objected to because of the following informalities:

On line 2, the word "galvanically" needs to be more clearly defined as to how the measuring electrodes are "galvanically" separated from the cage electrodes.

Appropriate correction is required.

### *Drawings*

6. The drawings are objected to because Fig. 8D is labeled twice in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application

must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 49-52 and 56-71, 74-75, 78-80, 90-94 and 97-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogg et al. (U.S. Patent No. 3,944,917) in view of Muller et al. (U.S. Patent No. 6,492,175).

.

With respect to claim 49, Hogg et al. discloses a measuring device for investigating particles which are suspended in a carrier liquid **[ABSTRACT]**, comprising:

a) at least two measuring electrodes for carrying out an electrical measuring of the particles **(col. 1, lines 37-39)**.

Hogg et al. does not disclose a trapping element for fixing the particles for the

electrical measuring, wherein the trapping element is a field cage comprising a plurality of cage electrodes.

Muller et al. discloses a trapping element for fixing the particles for the electrical measuring, wherein the trapping element is a field cage comprising a plurality of cage electrodes **[21a-21d] (see Fig. 2a; also col. 6, lines 23-27)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. to include a trapping element for fixing particles for the electrical measuring, wherein the trapping element is a field cage comprising a plurality of cage electrodes as taught by Muller et al. to predictably allow larger particle concentrations that can be processed, with greater stability and reliability.

With respect to claim 50, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein at least one of the cage electrodes **[21a-21d] (see Muller et al. Fig. 2a)** is also a measuring electrode **(see Hogg et al. col. 1, lines 37-39)**.

With respect to claim 51, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein an electrical trapping signal for fixing the particles is present at the cage electrodes **(see Muller et al. col. 3, lines 1-14)**, and an electrical measuring signal is present at the measuring electrodes **(see Hogg et al. col. 1, lines 37-46)**.

With respect to claim 52, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 51, wherein a frequency of the trapping signal **(see Muller et al. col. 5, lines 21-25)** is different from a frequency of the measuring signal **(see Hogg et al. col. 9, line 65- col. 10, line 1; please note: the frequency in the trapping signal is a high frequency as opposed to the measuring signal of 500-1000khz, which is considered to be in the low frequency range)**.

.

With respect to claim 56, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the field cage comprises a plurality of cage electrodes, wherein the measuring electrodes are galvanically separated from the cage electrodes and can be selected independently of each other **(Please note: the reference don't specifically state how the measuring electrodes are galvanically separated from the cage electrodes, but Examiner will interpret galvanically to mean stimulate or shock with an electric current as defined in "thefreedictionary.com" which is also attached in this Office Action; as shown in the Hogg et al. reference an electric current is applied to the electrodes through the power supply 116; also (col. 1, lines 39-44)).**

With respect to claim 57, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring

electrodes comprise at least two electrodes for supplying current **(see Hogg et al. col. 2, lines 57-65)**, and at least two electrodes for measuring a voltage **(see Hogg et al. col. 1, lines 37-46, also please note in abstract that multiple electrodes can be used for monitoring changes)**.

With respect to claim 58, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring electrodes comprise two electrodes for both supplying current and measuring a voltage **(see Hogg et al. col. 2, lines 57-65 and col. 1, lines 37-46; also please note in abstract that multiple electrodes can be used for monitoring changes).**

With respect to claim 59, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring electrodes comprise two electrodes for supplying current **(see Hogg et al. col. 2, lines 57-65)** and a third electrode that uses any one of the other measuring electrodes or remaining cage electrodes as a reference electrode for measuring voltage **(see Hogg et al. col. 1, lines 37-46; also please note in abstract that multiple electrodes can be used for monitoring changes)**.

With respect to claim 60, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring electrodes comprise two electrodes for supplying current **(see Hogg et al. col. 2, lines**

**57-65)** and two electrodes for measuring voltage **(see Hogg et al. col. 1, lines 37-46; also please note in abstract that multiple electrodes can be used for monitoring changes).**

With respect to claim 61, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring electrodes comprise at least two electrodes for supplying current **(see Hogg et al. col. 2, lines 57-65; also please note in abstract that multiple electrodes can be used for monitoring changes)**.

With respect to claim 62, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring electrodes comprise at least two electrodes for measuring voltages **(see Hogg et al. col. 1, lines 37-46; also please note that multiple electrodes can be used for monitoring changes)**.

With respect to claim 63, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 59, wherein the electrodes used for measuring the voltage **[101-104] (see Hogg et al. Fig. 11)** are arranged in relation to the cage electrodes **[21a-21d] (see Muller et al. Fig. 2a)** such that the voltage between the electrodes used for measuring the voltage **(see Hogg et al. col. 1, lines**

**37-46)** is not influenced or minimally influenced by a trapping signal present at the cage electrodes **(see Muller et al. Fig. 2a; also col. 6, lines 23-30)**.

With respect to claim 64, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 57, wherein the cage electrodes are driven in pairs in phase opposition **[21a-21d] (see Muller et al. Fig. 2a)**, wherein at least one of the measuring electrodes **[101-104] (see Hogg et al. Fig. 11)** is arranged in a plane which extends between two of the cage electrodes, which are driven in phase opposition **[21a-21d] (see Muller et al. Fig. 2a)**.

With respect to claim 65, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the measuring electrodes are arranged in a measuring plane **[101-104] (see Hogg et al. Fig. 11, showing the electrodes aligned in a measuring plane).**

With respect to claim 66, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 65, wherein the measuring plane of the measuring electrodes **[104, 245] (see Hogg et al. Fig. 15, showing the electrodes aligned in a measuring plane)** is essentially aligned at an angle in relation to a direction of flow of the carrier liquid **(see Hogg et al. Fig. 15 showing both electrodes 104 and 245 aligned in an angle to a direction of flow)**.

With respect to claim 67, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 65, wherein the measuring plane of the measuring electrodes is aligned essentially parallel in relation to a direction of flow of the carrier liquid **(see Hogg et al. Fig. 11 showing the electrodes 101-104 aligned parallel to one another)**.

With respect to claim 68, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein a current path extends between a pair of said measuring electrodes **(please note: in Hogg et al. the current path signal is outputted from the power supply 116 in Fig. 11, extending through electrodes 101-104)** and a voltage measuring path extends between another pair of said measuring electrodes **[101-104] (see Hogg et al. Fig. 11)**, wherein the voltage measuring path extends across the current path **(see in Hogg et al. the signal from the electrodes 101-104 sends a signal to the signal-detecting amplifier 124 to measure the voltage across the electrodes)**.

With respect to claim 69, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 68, wherein the current path **(see Hogg et al. the current path sending a signal from power supply 116 to electrodes 101-104]** and the voltage measuring path **(see Hogg et al. voltage measuring path sending a signal from electrodes 101-104 to the signal-detecting amplifier 124]**

essentially extend through the field cage **(see Muller et al. Fig. 2a showing the field cage)**.

With respect to claim 70, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein said electrical measuring comprises an impedance measuring **(see Hogg et al. col. 11, lines 15-33)**.

With respect to claim 71, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 70, wherein said electrical measuring comprises impedance measurements at a plurality of frequencies **(see Hogg et al. claim 8)**.

With respect to claim 74, the combination of Hogg et al. and Muller et al. disclose the measuring device according to claim 49, wherein the field cage is a dielectrophoretic field cage **(see Muller et al. col. 5, lines 21-28)**.

With respect to claim 75, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the field cage is an electrophoretic field cage **(see Muller et al. col. 9, lines 49-52)**.

With respect to claim 78, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the field cage comprises five cage electrodes, one each at each comer point of a pyramid **(see Muller et al. col. 5, lines 4-7; please note: a three-dimensional field cage is also considered to be in the shape of a pyramid)**.

With respect to claim 79, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 78, wherein the pyramid comprises a bottom base area, wherein the cage electrodes form the measuring electrodes at the four comer points of this base area **(see Muller et al. col. 5, lines 4-7; also please note: a three dimensional field cage is also considered to be in the shape of a pyramid, further Fig 9 (three-dimensional field cage) shows electrodes placed on a flat base)**.

With respect to claim 80, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49, wherein the cage electrodes are connected to a control circuit which selects the cage electrodes with the trapping signal **(see Muller et al. col. 5, lines 21-28)**.

With respect to claim 90, Hogg et al. discloses a measuring method for investigating particles suspended in a carrier liquid **[ABSTRACT]**, comprising the following steps:

a) carrying out an electrical measuring process on at least one particle using at least two measuring electrodes **(col. 1, lines 37-39).**

c) supplying a measuring current by way of at least two of the measuring electrodes **(col. 2, lines 57-65)**; and d) measuring a measuring voltage with at least two of the measuring electrodes **(col. 1, lines 37-46; also please note in the abstract that multiple electrodes can be used for monitoring changes)**.

Hogg et al. does not disclose fixing the particle in a trapping element for the measuring process, wherein said trapping element is a field cage comprising a plurality of cage electrodes, wherein the plurality of cage electrodes form measuring electrodes.

Muller et al. discloses fixing the particle in a trapping element for the measuring process, wherein said trapping element is a field cage comprising a plurality of cage electrodes **(see Fig. 2a; also col. 6, lines 23-27)**., wherein the plurality of cage electrodes form measuring electrodes **(see Hogg et al. col. 1, lines 37-39).**

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. to include a trapping element for the measuring process, wherein said trapping element is a field cage comprising a plurality of cage electrodes, wherein the plurality of cage electrodes form measuring electrodes as taught by Muller et al. to predictably allow larger particle concentrations that can be processed, with greater stability and reliability.

With respect to claim 91, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 90, wherein an electrical trapping signal for fixing the particles is applied to the cage electrodes **(see Muller et al. col. 3, lines 1-14)**, wherein a frequency of the trapping signal **(see Muller et al. col. 5, lines 21-25)** differs from a frequency of the measuring current **(see Hogg et al. col. 9, line 65-col. 10, line 1; also please note: the frequency in the trapping signal is a high frequency as opposed to the measuring signal of 500-1000khz which is considered to be in the low frequency range)**.

With respect to claim 92, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 90, wherein the field cage comprises several cage electrodes **[21a-21d] (see Muller et al. Fig. 2a)**, wherein the measuring electrodes **(see Hogg et al. col. 1, lines 37-46)** are selected separately and independently of the cage electrodes **[21a-21d] (see Muller et al. Fig. 2a).**

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With respect to claim 93, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 90, wherein the cage electrodes are driven in pairs in phase opposition **[21a-21d] (see Muller et al. Fig. 2a)**.

With respect to claim 94, the combination of Hogg et al. and Muller et al.

discloses the measuring method according to claim 90, wherein electrical measuring comprises impedance measuring **(see Hogg et al. col. 11, lines 15-20)**.

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With respect to claim 97, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 90, further comprising the following steps:
carrying out reference measuring; and comparing a result of reference measuring with a result of electrical measuring of the particle **(see Hogg et al. col. 10, lines 47-67)**.

With respect to claim 98, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 97, wherein reference measuring is carried out with an empty field cage **(see Hogg et al. ABSTRACT, which describes how the measuring is performed with only the measuring electrodes and is absent of any field cages)**.

9. Claims 53-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogg et al. (U.S. Patent No. 3,944,917) in view of Muller et al. (U.S. Patent No. 6,492,175 B1) as applied to claims 49-52 and 56-71, 74-75, 78-80, 90-94 and 97-98 above.

With respect to claim 53, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 52.

The combination of Hogg et al. and Muller et al. does not specifically disclose wherein the trapping signal is present before the measuring signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to have a timing of the trapping signal in order to ensure that the particle is completely stationary before the measurement signal to achieve accurate results.

With respect to claim 54, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 52.

The combination of Hogg et al. and Muller et al. does not specifically disclose wherein the trapping signal is present during the measuring signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to have a timing of the trapping signal since the measurement of the particle would be taken while the particle is stationary, so therefore the trapping signal would have to be present during the measurement signal to obtain accurate results.

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With respect to claim 55, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 52.

The combination of Hogg et al. and Muller et al. does not specifically disclose wherein the trapping signal is present after the measuring signal.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to have a timing of the trapping signal since the particle should remain stationary during the measurement, a trapping signal should exist briefly after the measurement is done to ensure the most accurate measurements.

10. Claims 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogg et al. (U.S. Patent No. 3,944,917) in view of Muller et al. (U.S. Patent No. 6,492,175 B1) as applied to claims 49-52 and 56-71, 74-75, 78-80, 90-94 and 97-98 above, and further in view of Fuhr et al. (U.S. Patent No. 6,610,188 B1).

With respect to claim 76, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49.

The combination of Hogg et al. and Muller et al. does not disclose wherein the field cage comprises eight cage electrodes arranged at comer points of a right parallel epiped.

Fuhr et al. discloses wherein the field cage comprises eight cage electrodes arranged at comer points of a right parallel epiped **(see Fig. 1 showing the**

**arrangement of electrodes 13a-13d in parallel; also col. 4, lines 34-38 describes how Fig. 1 can comprise between four and eight identical electrodes)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to include a field cage comprising eight cage electrodes arranged at corner points of a right parallel epiped as taught by Fuhr et al. to predictably allow for larger particle concentrations that can be processed, with greater stability and reliability.

With respect to claim 77, the combination of Hogg et al., Muller et al. and Fuhr et al. discloses the measuring device according to claim 76, wherein the right parallel epiped comprises a substantially horizontal bottom base area **[21a, 21b] (see Fuhr et al. Fig. 2; showing the electrodes placed on a horizontal base/substrate)**, wherein the cage electrodes form the measuring electrodes at the four comer points of this base area **[13a-13d] (see Fuhr et al. Fig. 1)**

11. Claims 72, 73, 95 and 96 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogg et al. (U.S. Patent No. 3,944,917) in view of Muller et al. (U.S. Patent No. 6,492,175 B1) as applied to claims 49-52 and 56-71, 74-75, 78-80, 90-94 and 97-98 above, and further in view of Frazier et al. (U.S. Patent No. 6,169,394 B1).

With respect to claim 72, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 70.

The combination of Hogg et al. and Muller et al. does not disclose wherein said electrical measuring comprises an impedance spectroscopy measuring.

Frazier et al. discloses wherein said electrical measuring comprises an impedance spectroscopy measuring **(col. 13, lines 22-32)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to include electrical measuring comprising an impedance spectroscopy measuring as taught by Frazier et al. to predictably be able to obtain useful information about the physiochemical properties of a system.

With respect to claim 73, the combination of Hogg et al. and Muller et al. discloses the measuring device according to claim 49.

The combination of Hogg et al. and Muller et al. does not disclose wherein said electrical measuring comprises an impedance tomography measuring.

Frazier et al. discloses wherein said electrical measuring comprises an impedance tomography measuring **(col. 6, lines 26-31)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to include electrical measuring comprising an impedance tomography measuring as taught by

Frazier et al. to predictably monitor and analyze differences in electrical attributes of the particle being monitored in order to produce an image and using that image to adjust current flow to obtain desired results.

With respect to claim 95, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 94.

The combination of Hogg et al. and Muller et al. does not disclose wherein electrical measuring comprises impedance spectroscopy.

Frazier et al. discloses wherein said electrical measuring comprises an impedance spectroscopy measuring **(col. 13, lines 22-32)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to include electrical measuring comprising an impedance spectroscopy measuring as taught by Frazier et al. to predictably be able to obtain useful information about the physiochemical properties of a system.

With respect to claim 96, the combination of Hogg et al. and Muller et al. discloses the measuring method according to claim 94.

The combination of Hogg et al. and Muller et al. does not disclose wherein electrical measuring comprises tomography measuring.

Frazier et al. discloses wherein said electrical measuring comprises an impedance tomography measuring **(col. 6, lines 26-31)**.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the measuring device of Hogg et al. and Muller et al. to include electrical measuring comprising an impedance tomography measuring as taught by Frazier et al. to predictably monitor and analyze differences in electrical attributes of the particle being monitored in order to produce an image and using that image to adjust current flow to obtain desired results.

## ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FARHANA HOQUE whose telephone number is (571)270-7543. The examiner can normally be reached on Monday - Friday 8:30-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melissa Koval can be reached on (571) 272-2121. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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